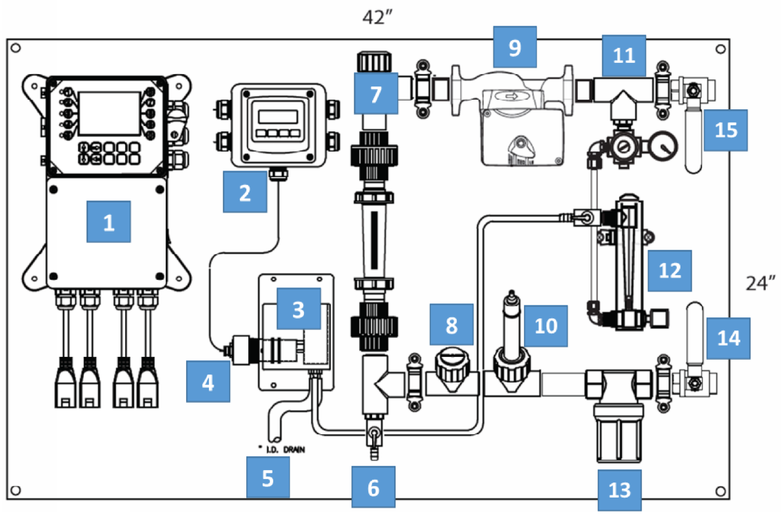

1 **WATER QUALITY MONITORING SYSTEM PANEL LAYOUT**

N.T.S.

SCHEDULE OF ITEMS FOR EACH OF SEVEN (7) WATER QUALITY MONITORING SYSTEMS:

1) CONTROLLER, ADVANTAGE CONTROLS, OR VA-APPROVED EQUAL
2) MONOCHLORAMINE MONITOR, ATI OR VA-APPROVED EQUAL
3) FLOWCELL FOR MONOCHLORAMINE MONITOR
4) MONOCHLORAMINE SENSOR
5) OUTLET TO DRAIN
6) SAMPLE PORT
7) FLOW SWITCH
8) CONDUCTIVITY PROBE
9) RECIRCULATION PUMP, GRUNDFOS MODEL UPS15-58FC, OR VA-APPROVED EQUAL.
10) PH PROBE
11) PRESSURE-REDUCING VALVE (PRV) FOR FLOWCELL SUPPLY
12) FLOW METER
13) BASKET STRAINER
14) ISOLATION VALVE - PANEL INLET
15) ISOLATION VALVE - PANEL OUTLET

NOTES

1. PIPING AND TUBING SHALL BE COPPER, $\frac{3}{4}$" AND $\frac{1}{4}$", RESPECTIVELY.
2. PIPE TO MAINS:
   - 2.1. BLDG. 111: PIPE INTO EXISTING $\frac{3}{4}$" PIPING.
   - 2.2. BLDGS. 123,144, 146, 147, 148, AND 150, PROVIDE CUT AND NEW TEES INTO TWO ADJACENT LOCATIONS ON 2" TO 3" COPPER MAINS.
   - 2.3. OUTAGES: REQUEST TWO WEEKS IN ADVANCE.

- VALVES SHALL BE GLOBE VALVES.
  1) BASIS OF DESIGN: MILWAUKEE VALVE; GRAINGER ITEM #1JLB9; MFR. MODEL # 502 3/4; UNSPSC #40151504; CATALOG PAGE # 3611; SHIPPING WEIGHT 4.95 LBS.
  2) PROVIDE ABOVE GLOBE VALVE OR VA-APPROVED EQUAL
  3) SALIENT FEATURES:
     - a. VALVE TYPE: CLASS 125, 3/4 IN.
     - b. PLUMBING REQUIREMENTS:
       - i. CLASS: CLASS 125
       - ii. PIPE SIZE: 3/4"
       - iii. CONNECTION TYPE: FNPT
     - c. MECHANICAL REQUIREMENTS:
       - i. BODY MATERIAL: BRONZE
       - ii. TOP OF HANDLE TO INLET CENTER: 3-15/16"
       - iii. INLET TO OUTLET LENGTH: 2-9/16"
       - iv. OPERATING CONSTRAINTS:

1. MAX. WATER PRESSURE 200 PSI
2. MAX. STEAM PRESSURE 125 PSI
3. MAX. FLUID TEMP. 406 DEGREES F

PRESSURE REDUCING VALVE:

1) BASIS OF DESIGN: WATTS LEAD-FREE WATER PRESSURE REDUCING VALVE; GRAINGER ITEM #31CD82; MFR. MODEL # ¾" LFN45BM1-DU-EZ; UNSPSC #40141609; CATALOG PAGE N/A; SHIPPING WEIGHT 2.15 LBS.
2) PROVIDE ABOVE PRESSURE-REDUCING VALVE OR VA-APPROVED EQUAL
3) SALIENT FEATURES:
   - a. VALVE TYPE: STANDARD, 3/4 IN.
   - b. PLUMBING REQUIREMENTS:
     - i. CLASS:
     - ii. PIPE SIZE: 3/4"
     - iii. CONNECTION TYPE: FNPT
   - c. MECHANICAL REQUIREMENTS:
     - i. BODY MATERIAL: BRONZE
     - ii. HEIGHT: 6-1/16"
     - iii. INLET TO OUTLET LENGTH: 4"
     - iv. OPERATING CONSTRAINTS:

1. MAX. WATER PRESSURE 400 PSI
2. MAX. FLUID TEMP. 180 DEGREES F
3. PRESET PRESSURE SETTINGS: 50 PSIG
4. PRESSURE ADJUSTMENT RANGE: 25 TO 75 PSIG

WQS INSTALLATION NOTES – PROVIDE

1. PROVIDE AT EACH LOCATION ONE WATER QUALITY MONITORING SYSTEM (QMS).
2. EACH SYSTEM SHALL PROVIDE DIGITAL MONITORING FOR PARAMETERS: MONOCHLORAMINE, PH, TEMPERATURE, CONDUCTIVITY, PRESSURE, AND FLOW (FOR FLOW, SWITCH ONLY, NOT FLOW RATE). PROVIDE STATIC MONITORING OF FLOW RATE.
3. MONITOR SHALL PROVIDE CONTINUOUS DATA LOGGING VIA EXISTING METASYS SYSTEM.
4. PROVIDE POWER PER PLANS.
5. SOLE SOURCE TO JCI FOR ELECTRICAL AND SIGNAL WORK AS FOLLOWS:
   - 5.1. SHOP DRAWINGS AND RELATED ENGINEERING TO ENSURE PROPOSED NEW JCI EQUIPMENT IS PROPERLY SELECTED AND FURNISHED WITH HARDWARE (PORTS, CARDS, BOARDS) REQUIRED
   - 5.2. NEW EQUIPMENT (TO BE INSTALLED BY ELECTRICAL CONTRACTOR)
   - 5.3. BUILDINGS 111, 123, 144, 146, 147, AND 148, NEW IOM AND ENCLOSURE:
     - 5.3.1. PAJL00001FH0 MS–IOM2721–0 CONTROLLER CONTROL PANEL MOUNTED IN NEW ENCLOSURE.
     - 5.3.2. PROVIDE 16 IN. X 20 IN. X 6–5/8 IN. D HOFFMAN ENCLOSURE. INSTALL IOM WITHIN ENCLOSURE, FASTEN ADJACENT TO EXISTING JCI PANEL.
     - 5.3.3. QUANTITY = 6
   - 5.4. FISHER HOUSE (BUILDING 150), PROVIDE AND INSTALL NEW ENCLOSURE AND NCE AND ETHERNET CONNECTION BACK TO GRAPHICS:
     - 5.4.1. PANEL ASSEMBLY FOR THE NCE FOR FISHER HOUSEPARE00001FC0 MS–NCE2560–0 CONTROLLER MOUNTED IN NEW ENCLOSURE.
     - 5.4.2. PROVIDE 16 IN. X 20 IN. CUSTOM ENCLOSURE WITH 96 VA 120/24 VAC POWER SUPPLY AND 5–PORT SWITCH
     - 5.4.3. QUANTITY = 1
   - 5.5. SIGNAL FROM NEW SYSTEMS TO NEW JCI EQUIPMENT
   - 5.6. SIGNAL FROM NEW JCI EQUIPMENT TO COMMUNICATIONS PORT OR EXISTING JCI PANEL, AS EACH SITUATION REQUIRES.
   - 5.7. GOVERNMENT TO FURNISH:
     - 5.7.1. PROGRAMMING AND SET UP OF SCREEN AT GRAPHICS
     - 5.7.2. TIE INTO METASYS
     - 5.7.3. SIGNAL TESTING AND REPORTING AT GRAPHICS
6. ARCHITECTURAL:
   - 6.1. PANEL AND FASTENERS
     - 6.1.1. 3/8" POLYETHYLENE PANEL, MOUNTED TO WALL
     - 6.1.2. FASTENERS: ¼"X3" STAINLESS STEEL COUNTERSUNK SCREWS SET IN EXPANSION ANCHORS, 15 TOTAL, EVENLY SPACED IN 3 ROWS OF 5 SCREWS.
   - 6.2. PATCHING: WITH LIKE MATERIALS AND COLORS WHERE DAMAGE IS CAUSED BY CONTRACTOR WORK. VA HAS NO ATTIC STOCK.
7. PLUMBING:
   - 7.1. SEE PLUMBING DETAILS AND NOTES ON PLANS.
   - 7.2. PROVIDE NEW DIGITAL PRESSURE GAGE, DRILLED AND TAPPED INTO EACH WATER MAIN, ONE PER LOCATION, FIVE (5) TOTAL, TIED INTO AND POWERED BY PLUG FROM WQS CONTROLLER. TYPE: OMEGA DPG1000L–200G, OR VA–APPROVED EQUAL.
8. ELECTRICAL:
   - 8.1. PROVIDE NEW CONDUIT, CABLING, AND POWER SUPPLY TO NEW DEVICES AND EQUIPMENT
   - 8.2. SIGNAL – CAT5E.
   - 8.3. PROVIDE 5X4–20MA SIGNAL CONDUCTORS INTO NEW JCI PANELS.
   - 8.4. PROVIDE NEW CIRCUIT BREAKER AT PANELS, AND UPDATE PANEL SCHEDULES.

150, 147, 148, 146, 144, 123, 111 INSTALL WATER QMS

Revisions:	Date
2 AMENDMENT 002	05/27/16

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